

LISTING OF CLAIMS:

1. (Currently Amended) A liquid pipetting apparatus for dispensing a minute amount of liquid [[,]]comprising:

a conduit member for holding the liquid, and capable of dispensing the liquid from one end of the conduit member; and

an actuator for dispensing the liquid held in the conduit member from one end thereof by moving in the direction opposite to the dispensing direction of the liquid ~~the liquid pipetting apparatus comprising a liquid holding member for holding liquid in an inner portion thereof and capable of dispensing the liquid from one end, a washing means for washing the liquid holding member by sending washing water into the inner portion of the liquid holding member, means for dispensing the washing water held in the liquid holding member from the one end after stopping the sending of the washing water by the washing means for forming an air layer in the inner portion of the liquid holding member by drawing a given amount of air into the inner portion of the liquid holding member from the one end, after the discharging of the washing water, means for sucking the liquid into the inner portion of the liquid holding member from the one end so as to make the washing water in a separated state through the air layer, and a driving means for dispensing the liquid held to the liquid holding member from the one end thereof by moving the liquid holding member forward and backward along a dispensing direction.~~

Claims 2-3 (Cancelled)

4. (Previously Presented) A liquid pipetting apparatus as claimed in claim 1, wherein the conduit member is detachably connected to the driving means.

Claims 5-13 (Cancelled)

14. (Currently Amended) A micro array manufacturing method for manufacturing a micro array by dispensing on a substrate a minute volume of liquid from one end of ~~the a~~ liquid holding member for holding the liquid therein, the liquid including probes capable of being connected for a particular target substance ~~in the peculiarity~~, the micro array manufacturing method comprising:

a washing step for washing the liquid holding member by sending washing water into the liquid holding member[[,]] ;

a step for stopping the sending of the washing water[[,]] ;

a step for dispensing from the one end the washing water held in the inner portion of the liquid holding member, wherein washing water remains in the liquid holding member after the washing water is dispensed;

a step for forming an air layer in the inner portion of the liquid holding member by drawing in a given amount of air in the inner portion of the liquid holding member from the one end thereof[[,]] ;

a step for sucking ~~the~~ an inspection sample liquid into the inner portion of the liquid holding member from the one end of the liquid holding member,

wherein the remaining washing water and the inspection sample liquid are separated by a layer of air; ~~so as to make the washing water in a separated state through the air layer,~~ and

a step for dispensing the inspection sample liquid sucked into ~~held to~~ the liquid holding member from the one end thereof on ~~the~~ a substrate by moving the liquid holding member forward and backward along a dispensing direction.

Claims 15-27 (Cancelled)

28. (New) A liquid pipetting apparatus as claimed in claim 1, wherein the dispensing direction of the liquid is a vertical and downward direction.

29. (New) A liquid pipetting apparatus as claimed in claim 1, wherein the liquid held in the conduit member is dispensed from one end of the conduit member when the conduit member is moved in a direction opposite to the dispensing direction of the liquid.

30. (New) A liquid pipetting apparatus as claimed in claim 29, wherein the conduit member is moved in the direction opposite to the dispensing direction of the liquid after the conduit member has ceased movement in the dispensing direction of the liquid.

31. (New) A liquid pipetting apparatus as claimed in claim 30, wherein the dispensing

direction of the liquid is a vertical and downward direction.

32. (New) A liquid pipetting apparatus as claimed in claim 29, wherein the conduit member is moved in the direction opposite to the dispensing direction of the liquid after being moved in the dispensing direction of the liquid.

33. (New) A liquid pipetting apparatus as claimed in claim 32, wherein the dispensing direction of the liquid is a vertical and downward direction.

34. (New) A liquid pipetting apparatus as claimed in claim 32, wherein an acceleration of the conduit member is different in magnitude at the times that the conduit member moves in the dispensing direction of the liquid the conduit member versus when the conduit member moves in the direction opposite to the dispensing direction of the liquid.

35. (New) A liquid pipetting apparatus as claimed in claim 34, wherein a larger acceleration is caused in the conduit member at the time the conduit member is moved in the direction opposite to the dispensing direction of the liquid than at the time the conduit member is moved in the dispensing direction of the liquid.

36. (New) A liquid pipetting apparatus as claimed in claim 34, wherein a larger acceleration is caused in the conduit member at the time of dispensing the liquid than at the time of not dispensing the liquid.

37. (New) A liquid pipetting apparatus as claimed in claim 1, wherein after being moved in the direction opposite to the dispensing direction of the liquid, the conduit member dispenses the liquid held within the conduit member from one end thereof.

38. (New) A liquid pipetting apparatus as claimed in claim 37, wherein after being moved in the direction opposite to the dispensing direction of the liquid, the conduit member moves to specific a position in order to dispense the liquid held within the conduit member from one end thereof.

39. (New) A liquid pipetting apparatus as claimed in claim 37, wherein the conduit member repeats the movement to the dispensing direction of the liquid and the movement in the direction opposite to the dispensing direction of the liquid.

40. (New) A liquid pipetting apparatus as claimed in claim 1, wherein the liquid is held in the conduit member before the conduit member is moved in the direction opposite to the dispensing direction of the liquid.

41. (New) A liquid pipetting apparatus as claimed in claim 1, further comprising a washing means capable of washing the conduit member.

42. (New) A liquid pipetting apparatus as claimed in claim 41, wherein the washing means washes the conduit member after the conduit member is moved in the direction opposite to the dispensing direction of the liquid.

43. (New) A liquid pipetting apparatus as claimed in claim 41, wherein the washing means washes the conduit member before the conduit member is moved in the direction opposite to the dispensing direction of the liquid.

44. (New) A liquid pipetting apparatus as claimed in claim 41, wherein the washing means contains a pump for sending to the conduit member a cleaning solution capable of washing the conduit member.

45. (New) A liquid pipetting apparatus as claimed in claim 44, farther comprising means for holding the cleaning solution in the inside of the conduit member after stopping the liquid sending of the cleaning solution by the pump, and means for dispensing the cleaning solution held in the inside of the conduit member from one end thereof.

46. (New) A liquid pipetting apparatus as claimed in claim 45, further comprising means for forming an air space in the inside of the conduit member after the sending of the cleaning solution to the conduit member by the pump is stopped.

47. (New) A liquid pipetting apparatus as claimed in claim 46, further comprising means for sucking the liquid in the inside of the conduit member, from one end thereof, so as to make the state that the cleaning solution and the liquid held in the inside of the conduit member are separated through the air space.

48. (New) A liquid pipetting apparatus as claimed in claim 1, wherein the liquid is touched to the air space at the side opposite to the dispensing direction in the inside of the conduit member.

49. (New) A liquid pipetting apparatus as claimed in claim 48, further comprising in the inside of the conduit member a pump for drawing in the air that touches the liquid.

50. (New) A liquid pipetting apparatus as claimed in claim 49, wherein the pump draws in the air from the one end of the conduit member to the inside thereof.

51. (New) A liquid pipetting apparatus as claimed in claim 1, wherein the conduit member holds the liquid in the inside thereof and contains a dispensing vent to dispense the liquid held in the conduit member at its one end.

52. (New) A liquid pipetting apparatus as claimed in claim 51, wherein the inner portion of the liquid holding member has a taper shape, of which the cross-sectional area becomes smaller as the inner portion approaches the dispense vent.

53. (New) A liquid pipetting apparatus as claimed in claim 1, wherein the conduit member supplies the liquid into the inner portion thereof from the liquid container under the capillary action.

54. (New) A liquid pipetting apparatus as claimed in claim 1, wherein the actuator

includes a piezoelectric element.

55. (New) A liquid pipetting apparatus as claimed in claim 1, wherein the actuator dispenses by making the inertial force act on the liquid held in the conduit member.

56. (New) A liquid pipetting apparatus as claimed in claim 1, wherein the conduit member is connected to the actuator detachably.

57. (New) A liquid pipetting apparatus as claimed in claim 1, wherein the conduit member comprises a plurality of conduit members.

58. (New) A liquid pipetting apparatus for dispensing minute amount of liquid, the liquid pipetting apparatus comprising: a liquid holding means for holding the liquid, and capable of dispensing the liquid from one end thereof, and an actuating means for dispensing the liquid held in the conduit member from one end thereof by moving the liquid holding means in the direction opposite to the dispensing direction of the liquid.

59. (New) A micro array manufacturing apparatus for manufacturing a micro array by dispensing on a substrate a minute volume of the liquid including specimen capable of being connected respectively to a particular target substance, the micro array manufacturing apparatus comprising: a conduit member for holding the liquid and capable of dispensing the liquid from one end of conduit member, and an actuator for dispensing the liquid held in the conduit member from one end thereof by being moved in

a direction opposite to the dispensing direction of the liquid.

60. (New) A micro array manufacturing apparatus for manufacturing a micro array by dispensing on a substrate a minute volume of the liquid including specimen capable of being connected respectively to a particular target substance, the micro array manufacturing apparatus comprising: a liquid holding means for holding the liquid, and capable of dispensing the liquid from one end thereof, and an actuating means for dispensing the liquid held in the conduit member from one end thereof by moving the liquid holding means in the direction opposite to the dispensing direction of the liquid.

61. (New) A liquid dispensing method for dispensing a minute amount of liquid from one end of a conduit member for holding the liquid, the method comprising: of holding the liquid in the conduit member, and of dispensing the liquid held in the conduit member from one end thereof by moving the conduit member in the direction opposite to the dispensing direction of the liquid.

62. (New) A liquid dispensing method as claimed in claim 61, wherein the liquid held in the conduit member is dispensed from one end thereof, when the conduit member moves in the direction opposite to the dispensing direction of the liquid.

63. (New) A liquid dispensing method as claimed in claim 62, wherein the conduit member is moved in the direction opposite to the dispensing direction of the liquid, after the stop of movement.

64. (New) A liquid dispensing method as claimed in claim 62, wherein after being moved in the dispensing direction of the liquid, the conduit member is moved in the opposite direction to the dispensing direction of the liquid.

65. (New) A liquid dispensing method as claimed in claim 61, wherein at the time that the conduit member moves in the dispensing direction of the liquid and at the time that the conduit member moves in the direction opposite to the dispensing direction of the liquid the acceleration of the conduit member is different in magnitude.

66. (New) A liquid dispensing method as claimed in claim 65, wherein an acceleration in the conduit member at the time the conduit member is moved in the direction opposite to the dispensing direction of the liquid is larger than an acceleration at time the conduit member is moved in the dispensing direction of the liquid.